

REMARKS

Claims 1-3 and 8-24 are pending in this application. By this Amendment, the specification and claim 1 are amended. Support for the amendment to claim 1 can be found in the specification, for example, at page 13, line 23 - page 16, line 14. Claim 1 is also amended for clarity. No new matter is added. Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

The Office Action objects to the specification because the Abstract is not in the form of one paragraph. The objection is respectfully traversed.

Applicants respectfully submit that the amended Abstract is in compliance with MPEP §608.01(b). Accordingly, Applicants respectfully request withdrawal of the objection.

The Office Action rejects claim 1 under 35 U.S.C. §112 for lack of antecedent basis. The rejection is respectfully traversed.

Applicants have amended independent claim 1, as suggested by the Office Action. Accordingly, Applicants respectfully request withdrawal of the rejection.

The Office Action rejects claim 1 under 35 U.S.C. §112, second paragraph, as being indefinite. The rejection is respectfully traversed.

Applicants have amended independent claim obviate the rejection. Accordingly, Applicants respectfully request withdrawal of the rejection.

The Office Action rejects claims 1-21 under 35 U.S.C. §103(a) over U.S. Patent No. RE39,173E to Hourai et al. (hereinafter "Hourai").¹ The rejection is respectfully traversed.

Applicants respectfully submit Hourai fails to disclose a method for producing a single crystal in which the temperature gradient G of the crystal is controlled by changing at least two

¹ Applicants note that a Preliminary Amendment filed on December 13, 2005 cancelled claims 4-7 and added claims 8-24. Accordingly, claims 1-3 and 8-24 are pending in this application. Applicants believe the Office Action intended to reject claims 1-3 and 8-24 and will respond as such.

or more pulling conditions such that a single crystal including a first defect region is grown, as recited in independent claim 1.

The Office Action alleges that Hourai teaches the method of making silicon single crystal wafers free of grown-in defects, wherein careful control of pulling rate V (mm/min), and the temperature gradient G ($^{\circ}\text{C}/\text{mm}$) is controlled. Applicants respectfully disagree with this assertion.

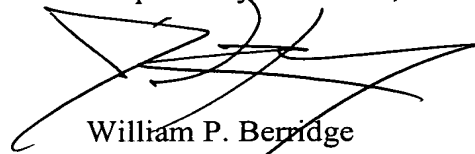
In particular, Hourai merely teaches that a silicon single crystal is formed using the CZ method, wherein the ratio of the pulling rate, V (mm/min) to the temperature gradient, G ($\text{mm}/^{\circ}\text{C}$) is $0.20\text{-}0.22 \text{ mm}^2/^{\circ}\text{C} \cdot \text{min}$ at the center of the crystal, and $0.20 \text{ mm}^2/^{\circ}\text{C} \cdot \text{min}$ or more at the outer surface of the crystal (col. 3, lines 52-57). However, Applicants respectfully submit that Hourai discloses controlling a V/G ratio by changing the pulling rate V during pulling of a single crystal (col. 7, lines 28-33, col. 8, lines 12-14, Figs. 3 and 5), not controlling a V/G ratio by changing a temperature gradient G during the pulling of a single crystal, as recited in independent claim 1. Thus, because Hourai teaches adjusting the pulling rate V during the pulling of a single crystal, and not changing the temperature gradient G during pulling of the single crystal, Hourai does not teach or suggest all the features of independent claim 1.

Therefore, it is respectfully submitted that claim 1 is patentable over Hourai. Further, it is respectfully submitted that claims 2, 3 and 8-24 are patentable at least in view of the patentability of claim 1, from which they depend, as well as for the additional features they recite. Accordingly, Applicants respectfully request withdrawal of the rejection.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-3 and 8-24 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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WPB:LXF/tjx

Attachment:
Amended Abstract

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